FLOW CONTROL DEVICE AND TRIGGER DEVICE OF SPRINKLER NOZZLE STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a sprinkler nozzle structure, and more particularly to a flow control device and a trigger device of the sprinkler nozzle structure.

2. Description of Related Art

The conventional sprinkler nozzle structure generally comprises a flow control device and a trigger device, which are structurally incorporated and are therefore complicated in construction, thereby resulting in an increase in production cost of the conventional sprinkler nozzle structure. The combination of the control device and the trigger device into one structural unit makes the conventional sprinkler nozzle structure vulnerable to mechanical failure.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a sprinkler nozzle structure comprising a flow control device and a trigger device, which are structurally independent of each other.

The foregoing objective of the present invention is attained by a sprinkler nozzle structure comprising a grip, a barrel, a spray nozzle, a flow control device, and a trigger device. The grip and the barrel are provided in the interior with a water channel. The grip and the barrel are connected by the flow control device. The spray nozzle is connected with the barrel. The trigger device is disposed in a midsegment of the grip. The flow control device comprises a control

tube and a control knob. The control tube is provided in the side wall of an inner end with two through holes which are opposite to each other and are in alignment with the water channel of the grip and the water channel of the barrel. The control tube is fastened at an outer end with the control knob by which the control tube is rotated such that the two through holes of the control tube are in a complete or partial alignment with the water channels, thereby resulting in flow control. The trigger device comprises a trigger, an actuation rod, and an action rod. The action rod is located in the water channel of the grip and is actuated by the actuation rod at the time when the trigger is activated, thereby resulting in separation of a stop edge of the action rod from an arresting surface of the inner wall of the water channel of the grip.

The features and the advantages of the present invention will be more readily understood upon a thoughtful deliberation of the following detailed description of the present invention with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a perspective view of the present invention.

FIG. 2 shows a side schematic plan view of the present invention.

FIG. 3 shows a sectional schematic view of the present invention in the "OFF" state.

FIG. 4 shows a sectional schematic view of the present invention in the "ON" state.

FIG. 5 shows a schematic view of the two through holes of the

control tube in a complete alignment with the water channels of the present invention.

FIG. 6 shows a schematic view of the two through holes of the control tube in a partial alignment with the water channels of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIGS. 1-4, a sprinkler nozzle structure of the present invention comprises a grip 10, a barrel 40, a spray nozzle 50, a trigger 60, and a trigger guard 30.

The grip 10 is provided in the interior with a water channel 11 extending in the longitudinal direction of the grip 10. The grip 10 is provided at a bottom end with a hose connector 12 in communication with the water channel 11. The water channel 11 is provided in the inner wall of a midsegment thereof with an annular arresting surface 13.

The present invention further comprises a trigger device which is structurally associated with the grip 10. The trigger device comprises a trigger 60, an action rod 80, and an actuation rod 90. The trigger 60 is pivoted with the grip 10 by a pivot 61. The action rod 80 is provided at a top end with a stop edge 81, and at a bottom end with a locating slot 82. The action rod 80 is disposed in the water channel 11 of the grip 10 such that the action rod 80 is forced by the water pressure to move upward, thereby causing the stop edge 81 to come in contact with the arresting surface 13 of the water channel 11, as shown in FIG. 3. The actuation rod 90 is provided with an inner end 92 which is located in the locating slot 82 of the action rod 80. The

actuation rod 90 is further provided with an outer end 91 which comes in contact with the trigger 60. As the trigger 60 is activated, the action rod 80 is actuated by the actuation rod 90, thereby resulting in separation of the stop edge 81 of the action rod 80 from the arresting surface 13 of the inner wall of the water channel 11 of the grip 10, as shown in FIG. 4. As a result, the water can flow freely in the water channel 11 without being obstructed. It must be noted here that the grip 10 is provided with a slanted side tube 14 in communication with the water channel 11. The actuation rod 90 is accommodated in the slanted side tube 14.

The barrel 40 is provided in the interior with a water channel 41 in communication with the spray nozzle 50 which is fastened with an outer end of the barrel 40 and is provided with a plurality of jet nozzles 51 for emitting water in the form of a spray.

A flow control device is located between an inner end of the barrel 40 and a top end of the grip 10. The control device comprises a housing 20, a control tube 70, a spring 76, and a control knob 73 which is fastened with an outer end 74 of the control tube 70 in conjunction with a fastening ring 75. The housing 20 is provided with an upper through hole 21 in communication with the water channel 41 of the barrel 40. The housing 20 is further provided with a lower through hole 22 in communication with the water channel 11 of the grip 10. In another words, the two through holes 21 and 22 of the housing 20 are in alignment with the water channels 11 and 41. The control tube 70 is provided with an upper through hole 71 and a lower through hole 72. The control tube 70 is rotatably disposed in the housing 20 such that the upper through hole 71 is corresponding

in location to the upper through hole 21 of the housing 20, and that the lower through hole 72 of the control tube 70 is corresponding in location to the lower through hole 22 of the housing 20. The spring 76 is disposed in the control tube 70 such that an outer end of the spring 76 urges the inner wall of an outer end of the control tube 70, and that an inner end of the spring 76 urges the inner wall of an inner end of the housing 20. As the control tube 70 is turned by the control knob 73 in such a way that the upper through hole 71 of the control tube 70 is in a complete alignment with the upper through hole 21 of the housing 20, and that the lower through hole 72 of the control tube 70 is in a complete alignment with the lower through hole 22 of the housing 20, as illustrated in FIG. 5, the water flow is greatest. When the control tube 70 is turned by the control knob 73 such that the through holes 71 and 72 are in a partial alignment with the through holes 21 and 22 of the housing 20, as illustrated in FIG. 6, the water flow is reduced.

The embodiment of the present invention described above is to be regarded in all respects as being illustrative and nonrestrictive. Accordingly, the present invention may be embodied in other specific forms without deviating from the spirit thereof. The present invention is therefore to be limited only by the scope of the following claim.